Algorithm Complexity

Objective

The objective of this lab is to understand how we can analyze the complexity of an algorithm. Developed two algorithm for searching and find time complexity to analyze which one is better for a given data size.

Task

1. **Sequential Search**

This algorithm takes about N steps for an unsuccessful search and about N/2 steps, on the average, for a successful search.

1. **Binary search**

Divide the array into two parts, determine which of the two parts the key being sought belongs to, then concentrate on that part ... The total number of comparisons is only about lgN.

Procedure

Algorithm

Given an array A[1],...,A[N] and target value V. Search routine should return an index of V in A. if V is present in the array, and N+1 otherwise.

IMPLEMENTATION

Unit: internal function   
Global variables: ascending sequence of numerical values A[1],...,A[N]   
Parameters: positive integer N, numerical value V   
Returns: the index of V in A. if V is present in the array, and N+1 otherwise